REMARKS/ARGUMENTS

Reconsideration of this application and entry of this Amendment are solicited. Claims 1-4 and 7-9, and 12-15 will be pending in the application subsequent to entry of this Amendment.

It is proposed to amend claim 1 by incorporating features of previous claims 5 and 6 into that claim. Adjustments in dependencies of claims 7 and 8 are included as claims 5 and 6 have been deleted due to their inclusion in claim 1.

The Official Action contains two rejections based on alleged anticipation. Neither of these rejections involves claim 5 or claim 6. Accordingly, the only issue remaining for consideration is the rejection of claims 4-8 as being "obvious" and therefore unpatentable over the disclosures of the Pekala et al published application in view of the Oka U.S. patent 5,830,603. Applicants now address this rejection.

The invention according to claim 1, which includes the features of previous claims 5 and 6, includes the following features:

(i) A separator for lithium ion secondary battery;

(ii) A porous base material containing polyolefin;

(iii) A porous layer containing a vinylidene fluoride resin as a main component provided on at least one surface of the porous base material, provided

the porous layer contains at least one vinylidene fluoride resin having a weight-average molecular weight of 150,000 to 500,000 in an amount of 50% by weight or more based on the overall vinylidene fluoride resin;

(iv) the average pore size of an external surface is less than that of an interior in the porous layer; and

(v) the external surface has an average pore size of 0.1 to 5 μm and the interior has an average pore size of 0.5 to 10 μm in the porous layer.

In stating the rejection on page 7, fourth paragraph of the Official Action, it is represented that the Oka patent "teaches that it is conventional to employ larger pores in the interior of polymer membranes in order to promote increased oxygen permeability" the reader's attention being directed to column 1, lines 30-35 of the Oka patent.

The passage to which the Official Action refers has nothing to do with pore size – in fact, pore size is not even mentioned. Instead, Oka et al discuss various types of alkaline storage

battery separator films and the materials from which they may be prepared. Alkali resistance and oxidation resistance are said to be important factors; increased oxygen permeability is not discussed. Accordingly, the manner in which the Oka et al disclosure is applied to applicants' claims is not correctly stated in the Official Action.

Oka et al discloses that a separator film composed of a porous film consisting of hydrophobic resin, and hydrophilic polymers which are fixed or held in pores of the porous film; see the embodiments disclosed (1) at column 3, lines 33-38 and (2) lines 47-52 and (3) column 4, lines 5-9. Oka also discloses (4) that the hydrophobic resin can preferably be prepared from a fluoro resin and the hydrophilic polymer(s) can preferably include at least one type of high polymer selected from a high polymer containing hydroxyl groups, a high polymer containing carboxyl groups, a high polymer containing imine or a high polymer containing sulfonic acid groups (see column 4, lines 5 to 15). Therefore, the separator film of Oka et al has only one type of film base material that is porous.

In contrast, the separator of the present invention has **two** types of the film base material that is porous, i.e., a porous base material containing polyolefin, and a porous layer containing a vinylidene fluoride resin. Further, and unlike Oka, the claimed separator does not have hydrophilic polymers which are fixed or held in pores of the porous film.

Also, Oka et al requires that the pore size of the porous film is 0.01 to 20 μm. However, as explained above, the construction of the separator of Oka et al is different from that of the present invention. Therefore, the above pore size of Oka et al does not teach or suggest pore sizes as it pertains to the present invention.

Accordingly, Oka et al lacks features (ii) to (v) of amended claim 1 in the present invention.

Pekala et al does not disclose that the average pore size of the external surface is less than that of the interior in the porous layer or the value of the pore size at all as the examiner acknowledges on page 7, third paragraph of the Action. Accordingly, Pekala et al lacks features (iv) and (v) of amended claim 1 in the present invention.

The Official Action does not address much less establish there is any reason to combine the two references. The mere fact that references <u>can</u> be combined or modified (and Applicants believe they cannot be) does not render the resultant combination obvious unless the prior art

also suggests the desirability of the combination. *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. Hence, the Examiner's attempt to combine the cited references alone without any suggestion in the references of the desirability of the modification is improper and should be withdrawn.

Accordingly, even assuming *arguendo* if Oka et al and Pekala et al may be combined (which applicants dispute), features (iv) and (v) of amended claim 1 in the present invention are still lacking.

In addition, features (iv) and (v) of amended claim 1 in the present invention provide the effect of the present invention. In the examples of the present specification, Examples 7 to 10 include features (iv) and (v) while Comparative Examples 5 and 6 do not have these features. As described in the specification (pages 39 to 42, Table 4 and Table 5), Examples 7 to 10 have a greater effect than Comparative Examples 5 and 6 in terms of ionic conductivity, volume retention ratio, and adhesion.

The results presented in the original specification accompanied by the executed declaration signed by the inventors would have significant evidentiary weight, comparable to the weight given to an executed declaration. The results presented in the original declaration are not mere arguments, as alleged by the examiner. It is well established by the Federal Circuit that "the examiner must consider comparative data presented in the specification which is intended to illustrate the claimed invention in reaching a conclusion in regard to the obviousness of claims." *In re Margolis,* 785 F.2d 1029, 228 U.S.P.Q. 1123, 1129 (Fed. Cir. 1993).

Neither Oka et al nor Pekala et al disclose or suggest that features (iv) and (v) would produce the above effects. Therefore, even if Oka et al and Pekala et al are combined, the effects of the present invention will not be realized and thus the present invention is not obvious to one of ordinary skill.

Applicants respectfully submit that claim 1 is in condition for allowance and so too are remaining claims 2-4, 7-9 and 12-15 by virtue of their dependency, either directly or indirectly, from amended claim 1.

For the above reasons it is respectfully submitted that the claims of this application define inventive subject matter. Reconsideration, entry of this Amendment and allowance are solicited. If the examiner has any questions, please contact the undersigned by telephone.

Respectfully submitted,

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